

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2004/015773

A. CLASSIFICATION OF SUBJECT MATTER

Int.Cl⁷ A61K31/275, 31/165, 31/216, 31/137, 31/18, 31/505, 31/166, 31/4545, 31/506, 31/454, 31/4535, 31/423, 31/496, 31/439, 31/381, 31/4406, 31/4402, 31/429, 31/4453, 31/495, 31/5375, 31/47, 31/4196, 31/343,

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Int.Cl⁷ A61K31/275, 31/165, 31/216, 31/137, 31/18, 31/505, 31/166, 31/4545, 31/506, 31/454, 31/4535, 31/423, 31/496, 31/439, 31/381, 31/4406, 31/4402, 31/429, 31/4453, 31/495, 31/5375, 31/47, 31/4196, 31/343,

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
CAPLUS (STN), MEDLINE (STN), BIOSIS (STN), EMBASE (STN), REGISTRY (STN)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	WO 2003/091216 A1 (Sumitomo Pharmaceuticals Co., Ltd.), 06 November, 2003 (06.11.03), Page 33, line 26 to page 38, line 2 (Family: none)	3, 5-8, 21-23
E, X	WO 2004/096801 A1 (PFIZER PRODUCTS INC.), 11 November, 2004 (11.11.04), Full text (Family: none)	3-7, 21-24
P, X	WO 2004/056771 A1 (ASTRAZENECA AB), 08 July, 2004 (08.07.04), Full text (Family: none)	3, 5, 7, 21-24

☒ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search
18 January, 2005 (18.01.05)

Date of mailing of the international search report
08 February, 2005 (08.02.05)

Name and mailing address of the ISA/
Japanese Patent Office

Authorized officer

Facsimile No.

Telephone No.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2004/015773

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	WO 2004/020411 A1 (ASTRAZENECA AB), 11 March, 2004 (11.03.04), Full text (Family: none)	3, 5, 22, 24
X	WO 2002/014280 A1 (Ono Pharmaceutical Co., Ltd.), 21 February, 2002 (21.02.02), Full text & JP 3433752 B2 & EP 1308440 A1 & US 2004/44036 A1	3, 5, 21-24
X	JP 2003-505420 A (SCHERING CORP.), 12 February, 2003 (12.02.03), Full text & WO 2001/007050 A1 & EP 1200087 A1	3-5, 21-24
X	JP 2002-521472 A (SCHERING CORP.), 16 July, 2002 (16.07.02), Full text & WO 2000/006545 A1 & EP 1258244 A1	3-5, 21-24
X	US 4795757 A (Rorer Pharmaceutical Corp.), 03 January, 1989 (03.01.89), Full text & US 4843081 A	3-5, 10-13, 17-24
X	US 3759974 A (Knoll A.G. Chemische Fabriken), 18 September, 1973 (18.09.73), Full text & FR 2017741 A & GB 1229400 A & CH 516529 A	3-5, 10-13, 17-24
X	TAKEDA, Mikio et al., Azabicycloalkanes as Analgetics. V. 4-Phenyl-2-azabicyclo[2,2,2] octanes, Chemical & Pharmaceutical Bulletin, 1977, Vol.25, No.4, p.775-83	3-5, 10-13, 17-20, 22, 23
X	DEI, Silvia et al., Verapamil Analogues with Restricted Molecular Flexibility, Journal of Medicinal Chemistry, 1991, Vol.34, No.7, p.2219-25	3-5, 10-13, 17-23
X	PEREIRA, Elene et al., Reversal of multidrug resistance by verapamil analogues, Biochemical Pharmacology, 1995, Vol.50, No.4, p.451-7	3-5, 10-13, 17-23
X	JP 7-508263 A (SmithKline Beecham Corp.), 14 September, 1995 (14.09.95), Full text & WO 1993/019751 A1 & EP 636026 A1 & US 5605923 A	3-5, 10, 17-24

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2004/015773

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 6-25213 A (Recordati S.A. Chemical and Pharmaceutical Co.), 01 February, 1994 (01.02.94), Full text & EP 566288 A1 & US 5453518 A	3-5, 10, 17-23
X	US 3979444 A (The Upjohn Co.), 07 September, 1976 (07.09.76), Full text (Family: none)	3-5, 10, 16-20, 22-24
X	DE 2109155 A1 (C.H.Boehringer Sohn), 14 September, 1972 (14.09.72), Full text (Family: none)	3, 5, 22-24
X	DE 752755 C2 (I.G.Farbenindustrie A.G.), 10 November, 1952 (10.11.52), Full text (Family: none)	3, 5, 22-24
X	US 3970656 A (Government of the United States), 20 July, 1976 (20.07.76), Full text (Family: none)	3, 5, 22-24
X	GB 948874 A (Dr. KARL THOMAE G.M.B.H.), 05 February, 1964 (05.02.64), Full text & DE 1445476 A & CH 407120 A	3, 5, 22-24
X	US 3627772 A (Boehringer Ingelheim GmbH), 14 December, 1971 (14.12.71), Full text (Family: none)	3, 5, 21-24
X	FR 1316888 A (C.H.Borhringer Sohn.), 26 April, 1963 (26.04.63), Full text & US 3708597 A & US 3763164 A	3, 5, 21-24
X	JP 50-5197 B1 (John Wyeth & Brother Ltd.), 28 February, 1975 (28.02.75), Full text & GB 1285025 A & FR 2015812 A	3, 5, 21-24
X	CH 277304 B (Rathgeb Fritz), 16 November, 1951 (16.11.51), Full text (Family: none)	3, 5, 21-23

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2004/015773

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 591992 A (SOCIETY OF CHEMICAL INDUSTRY IN BASLE), 04 September, 1947 (04.09.47), Full text (Family: none)	3, 5, 21-23
X	US 2486792 A (Ciba Pharmaceutical Products, Inc.), 01 November, 1949 (01.11.49), Full text (Family: none)	3, 5, 21-23
X	US 2551152 A (Ciba Pharmaceutical Products, Inc.), 01 May, 1951 (01.05.51), Full text (Family: none)	3, 5, 21-23
X	WO 2003/053361 A2 (OSI PHARMACEUTICALS, INC.), 03 July, 2003 (03.07.03), Page 76 & US 2003/229067 A1	3, 5, 21-23
X	BURKHOLDER, Timothy P. et al., Synthesis and structure-activity relationships for a series of substituted pyrrolidine NK ₁ /NK ₂ receptor antagonists, Bioorganic & Medicinal Chemistry Letters, 1997, Vol.7, No.19, p.2531-6	3, 5, 21-23
X	JP 9-500361 A (Merrell Dow Pharmaceuticals Inc.), 14 January, 1997 (14.01.97), Full text & WO 1994/026735 A1 & EP 696280 A1	3, 5, 21-23
X	JP 2002-524445 A (PFIZER PRODUCTS INC.), 06 August, 2002 (06.08.02), Full text & WO 2000/014066 A1 & EP 1112255 A1 & US 2002/13321 A1	3, 5-8, 22-24
X	THOMPSON Doug et al., Facile synthesis of N-substituted-4-cyano-4-phenylpiperidines via phase-transfer catalysis, Journal of Heterocyclic Chemistry, 1983, Vol.20, p.771-2	3, 5, 21-23

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2004/015773

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 27

because they relate to subject matter not required to be searched by this Authority, namely:

The invention as set forth in claim 27 pertains to methods for treatment of the human body by therapy and thus relates to a subject matter which this International Searching Authority is not required, under the provisions of Article 17(2)(a)(i) of the PCT (continued to extra sheet)

2. ☐ Claims Nos.:

because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:

because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest.

☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2004/015773

Continuation of Box No.II-1 of continuation of first sheet(2)

and Rule 39.1 of the Regulations under the PCT, to search.

(Scope of international search)

Claims 1-26 and 28 pertain to a compound represented by the formula (1) or the formula (1') or a medicine containing the compound as an active ingredient. However, the compounds which are disclosed in the meaning of Article 5 of the PCT are limited to an extremely small part of the compounds claimed.

Consequently, it is considered that claims 1-26 and 28 lack sufficient support by the description in the meaning of Article 6 of the PCT.

Therefore, an international search was made for the compounds specified as examples in the description.

Continuation of A. CLASSIFICATION OF SUBJECT MATTER (International Patent Classification (IPC))

Int.Cl⁷ 31/341, 31/55, 31/36, 31/417, 31/4164, 31/4196, C07C311/20, 311/07, 255/46, 311/39, 311/21, 229/48, 217/52, 311/05, 311/18, 233/05, 233/78, 237/24, C07C323/36, 317/32, 309/46, C07D207/38, 209/04, 211/14, 239/42, 401/04, 401/14, 403/06, 413/04, 417/04, 409/04, 263/58, 277/82, 451/02, 333/20, 231/38, 233/88, 213/36, 513/04, 295/22, 295/14, 215/38, 249/08, 307/79, 307/82, 223/06, 223/04, 317/58, A61P3/06, 9/00, 9/10, 7/02, 43/00

(According to International Patent Classification (IPC) or to both national classification and IPC)

Continuation of B. FIELDS SEARCHED

Minimum documentation searched (International Patent Classification (IPC))

Int.Cl⁷ 31/341, 31/55, 31/36, 31/417, 31/4164, 31/4196, C07C311/20, 311/07, 255/46, 311/39, 311/21, 229/48, 217/52, 311/05, 311/18, 233/05, 233/78, 237/24, C07C323/36, 317/32, 309/46, C07D207/38, 209/04, 211/14, 239/42, 401/04, 401/14, 403/06, 413/04, 417/04, 409/04, 263/58, 277/82, 451/02, 333/20, 231/38, 233/88, 213/36, 513/04, 295/22, 295/14, 215/38, 249/08, 307/79, 307/82, 223/06, 223/04, 317/58

Minimum documentation searched (classification system followed by classification symbols)